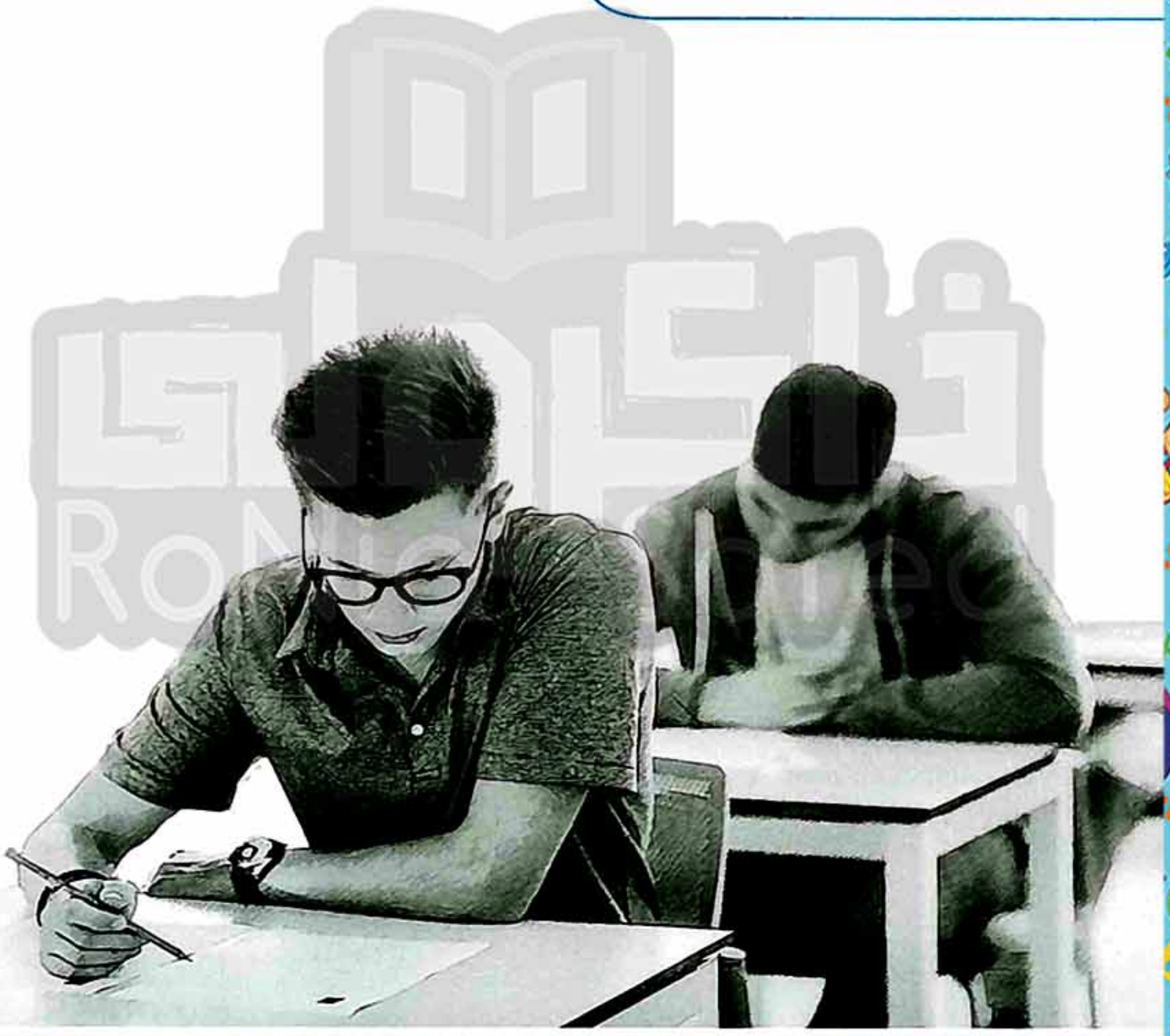
Final Examinations

on Algebra and Statistics



Model Examinations of the School Book on Algebra and Statistics

Model 1

Answer the following questions :

1 Complete the following :

1 The S.S. of the equation : $(x^2 + 3)(x^3 + 1) = 0$ is ..... , $x \in \mathbb{R}$

2 If the lower boundary of a set is 10 and the upper boundary is x and its centre is 15 , then $x =$ .....

3 $]-2 , 2] \cup \{-2 , 0\} =$ .....

4 The cube whose volume is 8 cm^3. , then the sum of all its edge lengths = ... cm.

5 The multiplicative inverse of the number $(\sqrt{3} + \sqrt{2})$ is ..... in the simplest form.

2 Choose the correct answer from the given ones :

1 If the radius length of a sphere is 6 cm. , then its volume is .....

(a) 6π cm^3 (b) 36π cm^3 (c) 72π cm^3 (d) 288π cm^3

2 If the point (a , 1) satisfies the relation $x + y = 5$, then a = ...

(a) 1 (b) -4 (c) 4 (d) 5

3 $(2\sqrt[3]{2})^3 =$ .....

(a) 4 (b) 8 (c) 16 (d) 40

4 The median of the values : 34 , 23 , 25 , 40 , 22 , 4 is .....

(a) 22 (b) 23 (c) 24 (d) 25

5 If the arithmetic mean of the values : 27 , 8 , 16 , 24 , 6 , k is 14 , then k = ...

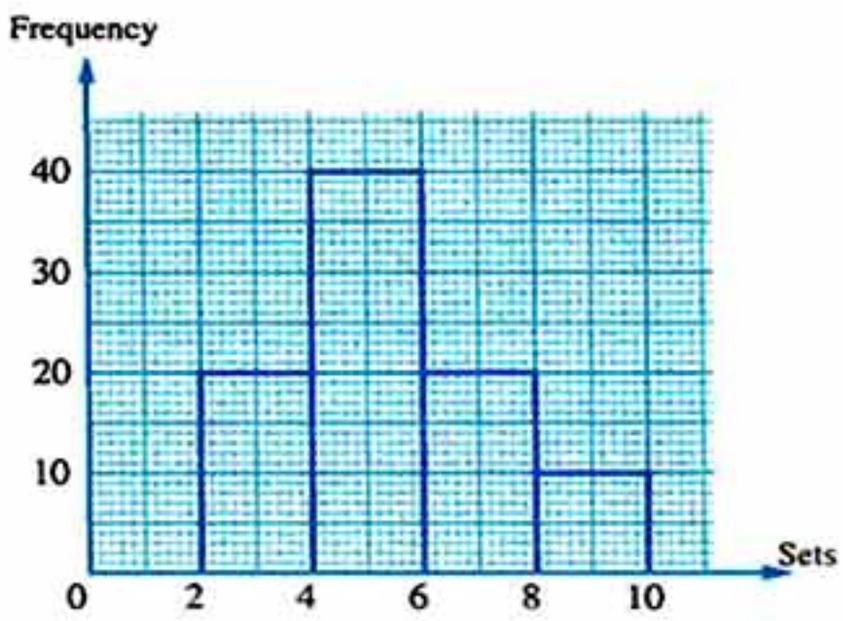
(a) 3 (b) 6 (c) 27 (d) 84

6 **In the opposite figure :**

The value of the mode = ...

(a) 4 (b) 5

(c) 6 (d) 40



Final Examinations

3 **[a] Find the value of :** $\sqrt{18}+\sqrt[3]{54}-3\sqrt{2}-\frac{1}{2}\sqrt[3]{16}$

[b] If $x=\frac{3}{\sqrt{5}-\sqrt{2}}$ and $y=\sqrt{5}-\sqrt{2}$

, prove that : x and y are two conjugate numbers.

4 **[a]** The area of a square is 1089 cm^2. Find the length of its diagonal.

[b] Find the S.S. of the inequality : $\frac{3x+1}{6}<x+1<\frac{x+4}{2}$ in $\mathbb{R}$

, then represent it on the number line.

5 **[a]** The radius length of the base of a right circular cylinder is $4\sqrt{2}$ cm. and its height is 9 cm. Find its volume in terms of π and if its volume equals the volume of a sphere , find the radius length of the sphere.

[b] Find the arithmetic mean of the following frequency distribution :

The sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	7	10	12	13	8	50

Model 2

Answer the following questions :

1 **Complete the following :**

1 The additive inverse of the number : $-\sqrt{3}-\sqrt{5}$ is .....

2 $(\sqrt{8}+\sqrt{2})(\sqrt{8}-\sqrt{2})=$ .....

3 The conjugate of the number $\frac{2\sqrt{5}-3\sqrt{2}}{\sqrt{2}}$ is .....

4 If the volume of a sphere is $\frac{9}{2}\pi$ cm^3. , then its diameter length is ..... cm.

5 $[3\ ,4]-\{3\ ,5\}=$ .....

2 **Choose the correct answer from the given ones :**

1 If the volume of a cube is 27 cm^3. , then the area of one of its faces is .....

(a) 3 cm^2 (b) 9 cm^2 (c) 36 cm^2 (d) 54 cm^2

2 If the mode of the values 4 , 11 , 8 , 2 x is 4 , then $x=$ .....

(a) 2 (b) 4 (c) 6 (d) 8

Algebra and Statistics

3 If the arithmetic mean of the values 18 , 23 , 29 , 2 k – 1 , k is 18 , then k = ...

(a) 1 (b) 7 (c) 29 (d) 90

4 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is .....

(a) 2 (b) 4 (c) 6 (d) 8

5 A right circular cylinder the radius length of its base is r cm. and its height equals its diameter length , then its volume = ... cm^3.

(a) πr^3 (b) πr^2 (c) $2 \pi r^3$ (d) $2 r^3$

6 The solution set of the equation : $x(x^2 - 1) = 0$, $x \in \mathbb{R}$ is .....

(a) $\{0\}$ (b) $\{1\}$ (c) $\{-1\}$ (d) $\{0 , -1 , 1\}$

3 **[a] Reduce to the simplest form :** $\frac{\sqrt{3}}{\sqrt{5}-\sqrt{3}} + \frac{\sqrt{5}}{\sqrt{5}+\sqrt{3}}$

[b] Prove that : $\sqrt[3]{128} + \sqrt[3]{16} - 2\sqrt[3]{54} = 0$

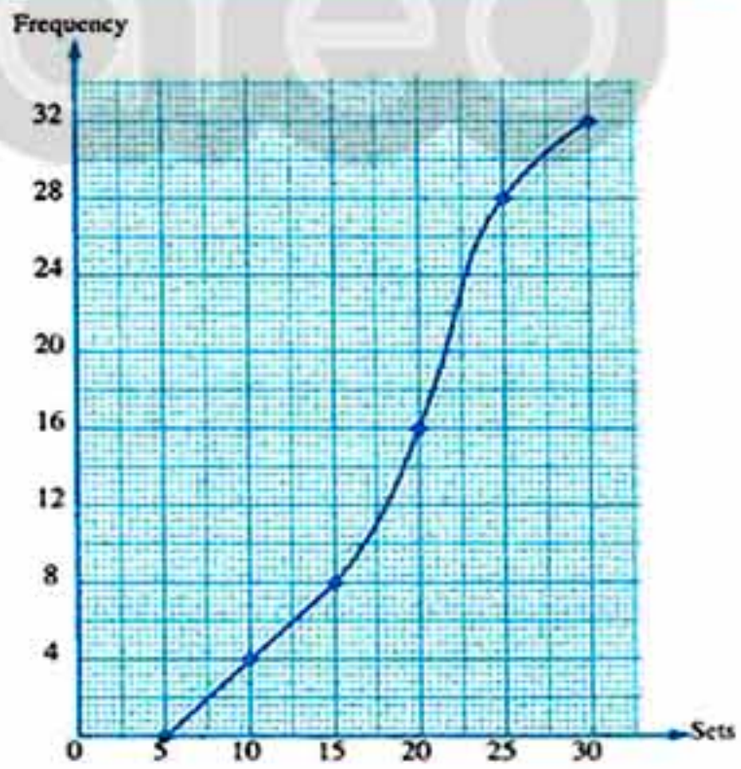
4 **[a] Find the S.S. of the inequality :** $-2 < 3x + 7 \leq 10$ **in** $\mathbb{R}$ **, then represent the interval** of solution on the number line.

[b] If $x = \sqrt{2 + \sqrt{3}}$ **, find the value of :** $x^4 - 2x^2 + 1$

5 [a] The opposite graph represents the marks of 32 pupils in an exam.

Complete :

The median mark = ...



[b] Find the arithmetic mean of the following frequency distribution :

The sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	4	5	6	3	2	20

Model for the merge students

Answer the following questions :

1 Complete each of the following :

1 The conjugate of the number $\sqrt{3}+\sqrt{2}$ is .....

2 $\sqrt{18}+\sqrt{54}-3\sqrt{2}=$ .....

3 The mode for the numbers : 3 , 5 , 3 , 4 , 3 is .....

4 The median of the values : 2 , 3 , 5 , 7 , 9 is .....

5 The solution set of the equation : $x^2+9=0$ in $\mathbb{R}$ is .....

2 Choose the correct answer from those given :

1 The arithmetic mean for the values : 9 , 6 , 5 , 14 , 1 is .....

(a) 7 (b) 3 (c) 5 (d) 9

2 The simplest form of the expression : $(\sqrt{3}-\sqrt{2})(\sqrt{3}+\sqrt{2})$ is .....

(a) $\sqrt{3}$ (b) 1 (c) $\sqrt{2}$ (d) $2\sqrt{3}$

3 The additive inverse of the number $-\sqrt{5}$ is .....

(a) $\sqrt{5}$ (b) 5 (c) $\sqrt{2}$ (d) -5

4 $[3 , 5]-\{3 , 5\}=$ .....

(a) $]3 , 5[$ (b) $[3 , 5[$ (c) $\varnothing$ (d) $]3 , 5]$

5 A cube is of volume 64 cm^3 , then its edge length is ..... cm.

(a) 4 (b) 8 (c) 16 (d) 64

3 Match from the column (A) to the suitable one from the column (B) :

(A)	(B)
1 The S.S. of the equation : $x^2-25=0$ in $\mathbb{R}$ is	$[0 , 2]$
2 $[-3 , 2]\cap[0 , 2]=$	7
3 If the order of the median is fourth , then the number of values is	$\{5 , -5\}$
4 $\sqrt{3}$ is a ..... number.	
5 The S.S. of the inequality : $3 \le x \le 7$ on the number line is	irrational

Algebra and Statistics

4 **Put (✔) for the correct statements and (✘) for the incorrect ones :**

1. The arithmetic mean of a set of values = sum of values ÷ its number. ( )
2. If $x = \sqrt{13} - \sqrt{7}$, $y = \sqrt{13} + \sqrt{7}$, then x , y are two conjugate numbers. ( )
3. The irrational number $\sqrt{7}$ lies between 2 and 3 ( )
4. $\sqrt{75} - 2\sqrt{27} = 7\sqrt{3}$ ( )
5. The simplest form of the number $\frac{1}{\sqrt{5}}$ is $\frac{\sqrt{5}}{5}$ ( )

5 **[a] Complete :** If the lower limit of a set is 4 and the upper limit is 8

, then its centre = $\frac{\ldots\ldots\ldots + \ldots\ldots\ldots}{2} = \ldots\ldots\ldots$

[b] Complete the following table to obtain the arithmetic mean of the following frequency distribution :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	7	10	12	13	8	50

Sets	The centre of the set « x »	Frequency « f »	$x \times f$
5 –	10	7	$10 \times 7 = 70$
15 –	20	10	$20 \times 10 = \ldots\ldots\ldots$
25 –	.....	.....	$\ldots\ldots\ldots \times 12 = \ldots\ldots\ldots$
35 –	.....	.....	$\ldots\ldots\ldots \times 13 = \ldots\ldots\ldots$
45 –	.....	.....	$\ldots\ldots\ldots \times 8 = \ldots\ldots\ldots$
Total		50	.....

The arithmetic mean = $\frac{\Sigma (x \times f)}{\Sigma (f)} = \frac{\ldots\ldots\ldots}{\ldots\ldots\ldots} = \ldots\ldots\ldots$

Some Schools Examinations on Algebra and Statistics

1 Cairo Governorate

Nasr City Educ. Administration
St. Fatima Language School

Answer the following questions :

1 Choose the correct answer :

1 $[0 , 5] \cup [3 , 8[=$ .....

(a) $]3 , 5]$ (b) $[3 , 5]$ (c) $[0 , 8]$ (d) $[0 , 8[$

2 $\sqrt{12} - \sqrt{3} =$ .....

(a) 3 (b) $\sqrt{3}$ (c) $2\sqrt{3}$ (d) $3\sqrt{3}$

3 The S.S. in $\mathbb{R}$ of the equation $x(x^2 - 1) = 0$ is .....

(a) $\{0\}$ (b) $\{1\}$ (c) $\{-1\}$ (d) $\{0 , -1 , 1\}$

4 The arithmetic mean of the values 27 , 8 , 16 , 24 , 6 , k is 14 , then k = ...

(a) 3 (b) 6 (c) 27 (d) 84

5 The additive inverse of the number $-\sqrt{5}$ is .....

(a) $\sqrt{5}$ (b) 5 (c) $\sqrt{2}$ (d) -5

6 The radius length of a sphere is 6 cm. , then its volume is .....

(a) 6π cm^3 (b) 36π cm^3 (c) 72π cm^3 (d) 288π cm^3

2 Complete :

1 $[1 , 5] \cap]-2 , 3] =$ .....

2 The mode of the set of the values 3 , 4 , 7 , 4 , 2 is .....

3 The volume of the cuboid whose dimensions are $\sqrt{2}$, $\sqrt{3}$, $\sqrt{6}$ cm. is ..... cm^3

4 The S.S. in $\mathbb{R}$ of $3 < 2x - 1 < 5$ as an interval is .....

5 The slope of any line parallel to x-axis is .....

3 [a] If $a = \sqrt{3} + \sqrt{2}$, $b = \sqrt{3} - \sqrt{2}$, find the value of : $a^2 - ab + b^2$

[b] Find the S.S. for each of the following inequalities in $\mathbb{R}$, in the form of an interval , then represent the S.S. on the number line :

1 $5x - 3 < 2x + 9$ 2 $1 \leq 3 - 2x < 5$

4 [a] If $M = [2 , \infty[$, $J =]-2 , 3[$, find each of the following using the number line :

1 $M \cap J$ 2 $M - J$

[b] Simplify : $\dfrac{\sqrt{3}}{\sqrt{5} - \sqrt{3}} + \dfrac{\sqrt{5}}{\sqrt{5} + \sqrt{3}}$

Algebra and Statistics

5 **[a] Reduce to the simplest form :** $2\sqrt{18}+\sqrt{50}+\frac{1}{3}\sqrt{162}$

[b] Find the arithmetic mean of the following frequency distribution :

The Set	5 –	15 –	25 –	35 –	45 –	Total
Frequency	4	5	6	3	2	20

2 Cairo Governorate

El-Maadi Zone
Directing Mathematics

Answer the following questions :

1 **Choose the correct answer :**

1 The multiplicative inverse of $\frac{\sqrt{3}}{12}$ is .....

(a) $4\sqrt{3}$ (b) 2 (c) $2\sqrt{3}$ (d) $6\sqrt{3}$

2 The conjugate of the number $2-\sqrt{3}$ is .....

(a) $\sqrt{3}-2$ (b) $2-\sqrt{3}$ (c) $\sqrt{2}-3$ (d) $2+\sqrt{3}$

3 The volume of the cuboid whose dimensions are $\sqrt{8}$, $\sqrt{3}$, $\sqrt{6}$ is .....

(a) 144 (b) 12 (c) $\sqrt{120}$ (d) 20

4 The median for the values 7 , 8 , 9 , 6 and 5 is .....

(a) 7 (b) 8 (c) 9 (d) 10

5 $4^3+4^3+4^3+4^3=$ .....

(a) 4^{20} (b) 4^4 (c) 4^{12} (d) 16^3

6 If (2 k , k) satisfies the relation $2x+y=15$, then k = ...

(a) 1 (b) 2 (c) 3 (d) 4

2 **Complete :**

1 $[2,7]-]2,7[=$ .....

2 If the mode of the values 8 , 11 , 4 , 2 x is 4 , then $x=$ .....

3 $\mathbb{R}\cap\mathbb{R}_-=$ .....

4 The slope of the straight line passing through the two points A (5 , 3) , B (2 , 1) is .....

5 The solution set in $\mathbb{R}$ for $x^2+4=16$ is .....

3 **[a] Put in the simplest form :** $2\sqrt{8}+\sqrt{50}-\sqrt{32}$

[b] Find the solution set in $\mathbb{R}$ for : $3x-4\leq 5$ and represent it on the number line.

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4 **[a]** If $x = \frac{2}{\sqrt{7}-\sqrt{5}}$, $y = \sqrt{7}-\sqrt{5}$, **find :** $(x+y)^2$

[b] Represent graphically the relation : $y = 3x - 2$

5 **[a]** If the volume of a sphere equals $\frac{500}{3}\pi$ cm^3 , find the length of its radius.

[b] The following table shows the frequency of marks of 50 students :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	7	10	12	13	8	50

Find the mean of the marks of the students.

3 Cairo Governorate

El-Khalifa and El-Moketam Zone
El-Helmia Exper. Lang. School

Answer the following questions :

1 **Choose the correct answer :**

1 The S.S. in $\mathbb{R}$ for the equation : $x^3 + 8 = 0$ is .....

(a) $\{4\}$ (b) $\{2\}$ (c) $\varnothing$ (d) $\{-2\}$

2 If the mode of the values $3 , 5 , x+1 , 5 , 3 , 1$ is 5 , then $x =$ .....

(a) 5 (b) 4 (c) 3 (d) 6

3 The cube whose volume is 8 cm^3 , the area of one of its faces is ..... cm^2

(a) 4 (b) 8 (c) 16 (d) 64

4 If $x < \sqrt{15} < x+1$, $x \in \mathbb{Z}$, then $x =$ .....

(a) 3 (b) 4 (c) 5 (d) $\varnothing$

5 $\sqrt{3} + \sqrt{3} =$ .....

(a) -3 (b) $\sqrt{12}$ (c) 12 (d) 3

6 Which of the following ordered pairs satisfies the relation $2x + y = 5$?

(a) $(-1 , 3)$ (b) $(1 , 3)$ (c) $(3 , 1)$ (d) $(2 , 2)$

2 **Complete :**

1 $\sqrt[3]{\text{.....}} = -\sqrt{9}$

2 If $(-1 , 5)$ satisfies the relation $3x + k y = 7$, then $k =$ .....

3 If the order of the median of some values is fifth , then the number of these values is .....

4 $[-2 , 5] \cap [3 , 7] =$ .....

5 If the lower limit of a set is 4 and the upper limit of the same set is 10 , then the centre of this set is .....

Algebra and Statistics

3 **[a]** The volume of a sphere is $562.5\ \pi\ cm^3$, find its surface area.

[b] If $x = \frac{4}{\sqrt{7}+\sqrt{3}}$, $y = \sqrt{7}+\sqrt{3}$, **then find the numerical value of :** $x^2 - 2xy + y^2$

4 **[a]** **Find in $\mathbb{R}$ the S.S. of :** $-1 < 3x + 5 \leq 14$ and represent it on the number line.

[b] **Graph the relation :** $2x + y = 1$

[c] If $A =]-\infty , 3[$, $B = [-1 , 5]$

, find the following using the number line : **1** $A \cap B$ **2** $A - B$

5 **[a]** Find the slope of $\overleftrightarrow{AB}$ where A $(-1 , 3)$, B $(2 , 5)$

Is the point C $(8 , 1) \in \overleftrightarrow{AB}$?

[b] **The following table shows the marks of 50 students in an examination :**

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	7	10	12	13	8	50

Find the arithmetic mean of this frequency distribution.

4 Giza Governorate

El-Haram Directorate
Al Maarefa Exp. Language School

Answer the following questions :

1 **Complete the following :**

1. $\sqrt{4} = \sqrt[3]{\ldots\ldots\ldots}$
2. $]-3 , 4[\cup \{-3\} = \ldots\ldots\ldots$
3. The mode of the values 7 , 3 , 8 , 2 , 3 , 4 , 3 , 7 is .....
4. If $(3k , 2k)$ satisfies the relation $2x - y + 2 = 12$, then $k = \ldots\ldots\ldots$
5. The slope of the straight line which passes through A $(2 , -5)$, B $(3 , -2)$ is .....

2 **Choose the correct answer :**

1. The multiplicative inverse of $\frac{\sqrt{2}}{4}$ is .....

   (a) $\sqrt{2}$ (b) $2\sqrt{2}$ (c) $4\sqrt{2}$ (d) 2

2. $[2 , 5] -]2 , 5[= \ldots\ldots\ldots$

   (a) $\{2 , 5\}$ (b) $[2 , 5[$ (c) $]2 , 5]$ (d) $\varnothing$

3. The mean of the values 4 , 7 , 3 , 9 , 2 is .....

   (a) 2 (b) 3 (c) 5 (d) 7

4. The S.S. of the equation $x^2 + 36 = 0$ in $\mathbb{R}$ is .....

   (a) $\{6\}$ (b) $\{-6\}$ (c) $\{6 , -6\}$ (d) $\varnothing$

Final Examinations

5 If $5x = 35$, then $2x + 1 =$ .....

(a) 9 (b) 15 (c) 8 (d) 7

6 The order of the median of 5 , 2 , 3 , 9 , 7 , 1 , 6 is .....

(a) 9 (b) 5 (c) 4 (d) 2

3 **[a]** If $X = [-2, 4]$, $Y =]1, 6]$, **find by using the number line :** 1 $\grave{X}$ 2 $X \cap Y$ 3 $X - Y$

[b] Find in $\mathbb{R}$ the S.S. of the inequality : $2x + 1 < 7$

4 **[a] Find in the simplest form :** $2\sqrt{18} + \sqrt{50} - \sqrt{162}$

[b] If $x = 3 + \sqrt{5}$, $y = \frac{4}{3 + \sqrt{5}}$, **prove that :** x , y are conjugate numbers **and find the value of :** $x^2 - 2xy + y^2$

5 **[a]** A lead cuboid in which its dimensions are 77 cm. , 24 cm. and 21 cm. It was melted to form a sphere. Find the radius length of that sphere $(\pi = \frac{22}{7})$

[b] Find the median by using the ascending cumulative frequency curve :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	4	5	6	3	2	20

5 Giza Governorate

Abo El-Nomros Educational Zone
Royal House Language Schools

Answer the following questions :

1 **Choose the correct answer :**

1 $(\sqrt{8} + \sqrt{2})^2 =$ .....

(a) $\sqrt{10}$ (b) 10 (c) 18 (d) $\sqrt{18}$

2 The slope of any line // x-axis is .....

(a) 1 (b) undefined (c) – 1 (d) zero

3 The multiplicative inverse of $(-2\frac{1}{3})$ is .....

(a) $\frac{1}{3}$ (b) $-\frac{7}{3}$ (c) $\frac{3}{7}$ (d) $-\frac{3}{7}$

4 The median of the values 34 , 23 , 25 , 40 , 22 is .....

(a) 22 (b) 23 (c) 24 (d) 25

5 $2a^2b \times$ ..... $= 12a^3b$

(a) 6 a b (b) 6 a (c) 6 b (d) $6ab^2$

Algebra and Statistics

6 The mode of the values 8 , 5 , $x + 3$, 5 , 8 is 8 , then x = ...

(a) 5 (b) 8 (c) 3 (d) -5

2 Complete :

1 The point (3 , ...) satisfies $2x + y = 10$

2 The mean of x , $2x$, $3x$ is .....

3 If $2x = y$, then $x : y$ = ... : .....

4 If the centre of a set is 4 and the upper limit of this set is 8 , then the lower limit of this set is .....

5 $[2 , 3] - \{2 , 3\}$ = ...

3 [a] If $x = \sqrt{7} - \sqrt{6}$, $y = \frac{1}{x}$, **find the value of :** $(x + y)^2$ (Show the steps).

[b] Find in $\mathbb{R}$ the S.S. of : $-15 \leq 2x - 3 \leq 5$

[c] Simplify : $\sqrt[3]{54} + 8\sqrt[3]{\frac{1}{4}} + 5\sqrt[3]{16}$

4 [a] If $X =]-\infty , 5]$ and $Y =]1 , 9[$, **find by using the number line :**

1 $X \cap Y$ 2 $X \cup Y$ 3 $X - Y$

[b] Find the slope of the straight line passing through the two points (2 , 4) , (4 , 5)

5 [a] Find the S.S. in $\mathbb{R}$: $125x^3 - 7 = 20$

[b] Find the mode of the following distribution :

The Set	2 –	6 –	10 –	14 –	18 –	22 –	26 –	Total
Frequency	3	5	8	10	7	5	2	40

6 Alexandria Governorate

East Educational Zone
Maths Supervision

Answer the following questions :

1 Choose the correct answer from the given ones :

1 The arithmetic mean for the values : 9 , 6 , 5 , 14 , 1 is .....

(a) 7 (b) 3 (c) 5 (d) 9

2 The additive inverse of the number $-\sqrt{5}$ is .....

(a) $\sqrt{5}$ (b) 5 (c) $\sqrt{2}$ (d) -5

3 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is .....

(a) 2 (b) 4 (c) 6 (d) 8

4 The simplest form of the expression : $(\sqrt{3}-\sqrt{2})(\sqrt{3}+\sqrt{2})$ is .....

(a) $\sqrt{3}$ (b) 1 (c) $\sqrt{2}$ (d) $2\sqrt{3}$

5 If the radius length of a sphere is 6 cm. , then its volume is ..... π cm^3.

(a) 6 (b) 36 (c) 72 (d) 288

6 $(2\sqrt[3]{2})^3 =$ .....

(a) 4 (b) 8 (c) 16 (d) 40

2 Complete the following :

1 If $3^x = 1$, then $x =$ .....

2 The median of the values 2 , 9 , 3 , 7 , 5 is .....

3 $]-2\ ,2] \cup \{-2\ ,0\} =$ .....

4 The mode for the numbers : 3 , 5 , 3 , 4 , 3 is .....

5 A cube whose volume is 8 cm^3. , then the sum of lengths of all its edges is .....

3 [a] Find the value of : $\sqrt{18}+\sqrt[3]{54}-3\sqrt{2}-\frac{1}{2}\sqrt[3]{16}$ (with steps).

[b] Represent graphically the relation : $y = 2 - x$

4 [a] Find the S.S. of the inequality : $-2 < 3x + 7 \leq 10$ in $\mathbb{R}$, then represent the interval of solution on the number line.

[b] Reduce to the simplest form : $\frac{\sqrt{3}}{\sqrt{5}-\sqrt{3}}+\frac{\sqrt{5}}{\sqrt{5}+\sqrt{3}}$ (with steps).

5 [a] If $(\sqrt{3})^x = (2\sqrt{2}-\sqrt{5})(2\sqrt{2}+\sqrt{5})$, then what is the value of x ?

[b] Find the arithmetic mean of the following frequency distribution :

The Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	7	10	12	13	8	50

7 Alexandria Governorate

El-Montazah Educational Zone
Math's Supervision

Answer the following questions :

1 Choose the correct answer :

1 $\frac{3}{4} =$ ..... %

(a) 70 (b) 50 (c) 75 (d) 25

Algebra and Statistics

2 $[2 , 7] -]2 , 7[=$ .....

(a) $]2 , 7]$ (b) $[2 , 7[$ (c) $\{2 , 7\}$ (d) $[2 , \infty[$

3 The median of the values 3 , 7 , 2 , 9 , 5 , 11 is .....

(a) 9 (b) 6 (c) 8 (d) 11

4 The remainder of subtracting $-5x$ from $3x$ equals .....

(a) $-2x$ (b) $8x$ (c) $2x$ (d) $8x^2$

5 If (a , 4) satisfies the relation $x - y = -1$, then the value of a is .....

(a) $\sqrt{3}$ (b) 5 (c) 27 (d) 3

6 If the lower limit of a set is 4 and its centre is 9 , then its upper limit is .....

(a) 36 (b) 5 (c) 13 (d) 14

2 Complete :

1 $\sqrt[3]{5}$ + ... = zero

2 $\mathbb{R}^+ \cup \mathbb{R}^-$ = ...

3 $\sqrt{a} + \sqrt{b}$ its conjugate is ..... and their sum is .....

4 The mode of the set of values 4 , 5 , k + 1 , 3 is 3 , then k = ...

5 The slope of the straight line parallel to x-axis equals .....

3 [a] Simplify :

1 $\sqrt{32} - \sqrt{50} + 4\sqrt{\frac{1}{2}}$ 2 $\sqrt[3]{16} - \frac{1}{3}\sqrt[3]{54}$

[b] If $x = \sqrt{7} + \sqrt{5}$, $y = \frac{2}{x}$, find the value of $\frac{x + y}{xy}$ in the simplest form.

4 [a] Find in $\mathbb{R}$ the S.S. of the following inequality : $-1 \leq 3 - 2x < 5$,

then represent the interval of solution on the number line.

[b] Find the height of a right circular cylinder whose height is equal to its base radius length and its volume is 72π cm^3.

[c] Graph the relation : $x + 2y = 3$

5 [a] Find the slope of $\overleftrightarrow{AB}$, where A (– 1 , 3) and B (2 , 5). Is the point C (8 , 1) $\in \overleftrightarrow{AB}$?

[b] Find the mean of the following frequency data :

Sets	8 –	12 –	16 –	20 –	24 –	Total
Frequency	4	10	16	12	8	50

8 El-Kalyoubia Governorate

Directorate of Education
Inspection of Mathematics

Answer the following questions :

1 Choose the correct answer :

1 Let A (3 , 5) and B (5 , – 1) , then the slope of $\overleftrightarrow{AB}$ = ...

(a) $-\frac{1}{3}$ (b) – 3 (c) 3 (d) $\frac{1}{3}$

2 If the point (a , 1) satisfies the relation $x + y = 5$, then a = ...

(a) 1 (b) – 4 (c) 4 (d) 5

3 The median of the values 34 , 23 , 25 , 40 , 22 , 4 is .....

(a) 22 (b) 23 (c) 24 (d) 25

4 If the mode of the set of values 4 , 11 , 8 , 2 x is 4 , then x = ...

(a) 2 (b) 4 (c) 6 (d) 8

5 The arithmetic mean for the values 9 , 6 , 5 , 14 , 1 is .....

(a) 7 (b) 3 (c) 5 (d) 9

6 The mode for the values 3 , 5 , 3 , 4 , 3 is .....

(a) 3 (b) 4 (c) 5 (d) 12

2 Complete :

1 25% = ... $\left(\text{in the form of } \frac{a}{b} \text{ in the simplest form}\right)$

2 The sum of the two square roots of the number $2\frac{1}{4}$ is .....

3 $|-0.75|$ = ...

4 $\sqrt[3]{-125}$ = ...

5 The multiplicative inverse for $\left(\sqrt{3}+\sqrt{2}\right)$ in its simplest form is .....

3 [a] Find the value of x if : $x^3 - 1000 = 0$

[b] Find the circumference of the circle whose area is 3π cm^2.

4 [a] Find : $[2 , \infty[\cap]-2 , 3[$ (by using the number line)

[b] Simplify the following to the simplest form : $\left(\sqrt{2}+5\right)\left(3+\sqrt{2}\right)$

5 [a] Graph the straight line that represents the relation : $x + 2y = 3$

[b] Find the arithmetic mean of the following frequency distribution :

The Set	5 –	15 –	25 –	35 –	45 –	Total
Frequency	4	5	6	3	2	20

Algebra and Statistics

9 El-Gharbia Governorate

Central Mathematics Supervision
Official Languages Schools

Answer the following questions :

1 Choose the correct answer :

1 If the radius length of a sphere is 6 cm. , then its volume is .....

(a) 6π cm^3 (b) 36π cm^3 (c) 72π cm^3 (d) 288π cm^3

2 If the point (a , 1) satisfies the relation $x + y = 5$, then a = ...

(a) 1 (b) -4 (c) 4 (d) 5

3 The median of the values 34 , 23 , 25 , 40 , 22 , 4 is .....

(a) 22 (b) 23 (c) 24 (d) 25

4 The solution set of the equation $x(x^2 - 1) = 0$, $x \in \mathbb{R}$ is .....

(a) $\{1\}$ (b) $\{0\}$ (c) $\{-1\}$ (d) $\{0 , 1 , -1\}$

5 If the arithmetic mean of the values 18 , 21 , 29 , 2k + 1 , k is 18 , then k = ...

(a) 1 (b) 7 (c) 29 (d) 90

6 $\sqrt{3\frac{3}{8}} = \frac{3}{2}\sqrt{\frac{.....}{.....}}$

(a) $\frac{3}{8}$ (b) $\frac{3}{2}$ (c) $\frac{27}{8}$ (d) $\frac{729}{64}$

2 Complete the following :

1 If the lower boundary of a set is 10 and the upper boundary is x and its centre is 15 , then x = ...

2 The multiplicative inverse of the number $(\sqrt{3} + \sqrt{2})$ is ..... (in the simplest form).

3 $[3 , 4] - \{3 , 5\}$ = ...

4 $\sqrt{64} - \sqrt[3]{64}$ = ...

5 The slope of the straight line passing through (2 , 3) and (5 , -1) is .....

3 [a] If $x = \sqrt{7} + \sqrt{5}$, $y = \frac{2}{\sqrt{7} + \sqrt{5}}$

1 **Prove that :** x and y are two conjugate numbers.

2 **Find :** xy , $(x + y)^2$

[b] Find in the simplest form : $\sqrt{12} + \sqrt[3]{54} - \sqrt{3} - \sqrt[3]{16}$

4 [a] Graph the relation : $2x + 3y = 6$, if the straight line representing this relation intersects the x-axis at A and the y-axis at B , find the area of the triangle OAB where O is the origin point.

[b] Find the solution set in $\mathbb{R}$: $8x^3 + 7 = 8$

5 **[a] Find the solution set for the inequality :** $2x - 1 \geq 5$ **in** $\mathbb{R}$

[b] Find the arithmetic mean of the following frequency distribution :

The Set	5 –	15 –	25 –	35 –	45 –	Total
Frequency	4	5	6	3	2	20

Answer the following questions :

1 **Choose the correct answer from the given ones :**

1 If $x = 3 + \sqrt{3}$ and $y = 3 - \sqrt{3}$, then $x - y =$ .....

(a) $6\sqrt{3}$ (b) -6 (c) $\sqrt{6}$ (d) $2\sqrt{3}$

2 If the order of the median of a set of values is the fifth , then the number of these values is .....

(a) 6 (b) 10 (c) 11 (d) 9

3 The result of $(1 + \sqrt{5})(1 - \sqrt{5}) =$ .....

(a) 2 (b) -4 (c) $-2\sqrt{5}$ (d) $2\sqrt{5}$

4 If A (3 , – 2) , B (0 , 4) , then the slope of $\overleftrightarrow{AB} =$ .....

(a) -2 (b) 2 (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

5 The mean of the values 2 , 8 , 6 , 4 is .....

(a) 3 (b) 4 (c) 5 (d) 6

6 The multiplicative inverse of $\frac{\sqrt{3}}{6}$ is .....

(a) $-\frac{\sqrt{3}}{6}$ (b) $6\sqrt{3}$ (c) $2\sqrt{3}$ (d) $-2\sqrt{3}$

2 **Complete the following :**

1 $[-3 , 7] - \{-3 , 7\} =$ .....

2 The S.S. of the equation $x^2 + 9 = 0$ in $\mathbb{R}$ is .....

3 If the mode of 14 , 8 , $x + 5$, 8 and 14 is 8 , then $x =$ .....

4 The slope of the straight line perpendicular to y-axis is .....

5 If the volume of a sphere is $\frac{9}{2}\pi$ cm^3 , then its radius length is .....

3 **[a] Find in the simplest form :** $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$

[b] If $X = [-3 , 4]$, $Y =]1 , \infty[$ **, find each of the following using the number line :**

1 $X \cap Y$ 2 $X - Y$

Algebra and Statistics

4 **[a] Find in $\mathbb{R}$ the S.S. of the inequality :** $-7 \leq -3x + 1 < 13$ and represent it on the number line.

[b] If $x = \sqrt{6} + \sqrt{5}$, $y = \frac{1}{\sqrt{6} + \sqrt{5}}$:

1 **Prove that :** x , y are two conjugate numbers.

2 **Find :** the numerical value of $(x - y)^2$

5 **[a]** Graph the relation $y + 3x = 6$ and find the slope of the straight line.

[b] Find the arithmetic mean of the following frequency distribution :

Sets	10 –	20 –	30 –	40 –	50 –	Total
Frequency	5	15	20	25	10	75

11 Ismailia Governorate

Directorate of Education
Math's Supervision

Answer the following questions :

1 **Choose the correct answer :**

1 A (2 , 5) , B (3 , 7) , then the slope of $\overleftrightarrow{AB}$ = ...

(a) $\frac{1}{2}$ (b) 2 (c) – 2 (d) 5

2 $]3 , 5[\cup \{3 , 5\}$ = ...

(a) $]3 , 5[$ (b) $\{3 , 5\}$ (c) $[3 , 5]$ (d) $[3 , 5[$

3 The median of 4 , 11 , 8 , 16 , 9 , 14 is .....

(a) 10 (b) 8 (c) 16 (d) 9

4 $\mathbb{Q} \cup \mathbb{Q}'$ = ...

(a) $\varnothing$ (b) $\mathbb{R}$ (c) $\mathbb{Z}$ (d) $\mathbb{N}$

5 The slope of x-axis is .....

(a) negative. (b) positive. (c) undefined. (d) zero.

6 $\mathbb{Z}^+ \cap \mathbb{Z}^-$ = ...

(a) zero (b) $\varnothing$ (c) $\mathbb{Z}$ (d) $\mathbb{N}$

2 **Complete :**

1 The mean of 12 , 13 , 10 , 11 , 14 is .....

2 The multiplicative inverse of $\sqrt{3} - \sqrt{2}$ is .....

3 The mode of 5 , 11 , 6 , 2 , 11 , 7 is .....

4 If $\frac{x}{y} = 1$, then $x - y$ = ...

5 $\sqrt{5^2 - 4^2}$ = ...

Final Examinations

3 **[a] Find the S.S. in $\mathbb{R}$ of :** $8 \leq 3x + 2 \leq 17$ and represent it on the number line.

[b] Simplify : $\sqrt{72} + 3\sqrt{18} - 2\sqrt{\frac{1}{2}}$

4 **[a]** The volume of a cylinder is $1540\ cm^3$. , if its height is 10 cm. , find its diameter length. $\left(\pi = \frac{22}{7}\right)$

[b] Graph the relation : $y = -3$

5 **[a] If** $X = [-1 , \infty[$, $Y =]-4 , 3]$, **using the number line find :**

1 $X \cap Y$ 2 $X \cup Y$ 3 $\grave{X}$

[b] Find the mean of the following frequency distribution :

Sets	10 –	20 –	30 –	40 –	50 –	Total
Frequency	8	12	14	9	7	50

12 Damietta Governorate

Damietta Inspection of mathematics
Official Language Schools

Answer the following questions :

1 **Choose the correct answer from those given :**

1 $\sqrt{25} - \sqrt[3]{-125} =$ .....

(a) zero (b) 10 (c) 5 (d) ± 5

2 The multiplicative inverse of $\frac{\sqrt{2}}{6}$ is .....

(a) $\sqrt{2}$ (b) $2\sqrt{2}$ (c) $3\sqrt{6}$ (d) $3\sqrt{2}$

3 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is .....

(a) 8 (b) 6 (c) 4 (d) 2

4 The solution set of the equation $x^2 + 9 = 0$ in $\mathbb{R}$ is .....

(a) $\{3\}$ (b) $\{-3\}$ (c) $\varnothing$ (d) $\{-3 , 3\}$

5 The arithmetic mean of the values $6 - k$, 12 , 18 and $k + 4$ is .....

(a) 9 (b) 10 (c) 15 (d) 40

6 If the volume of a cube is $27\ cm^3$, then the perimeter of one of its faces is ..... cm.

(a) 12 (b) 9 (c) 36 (d) 3

2 **Complete each of the following :**

1 The slope of the straight line passing through the points $(1 , -1)$ and $(-3 , 7)$ is .....

2 If the ordered pair $(k , 2k)$ satisfies the relation $x + y = 15$, then $k =$ .....

3 The point of intersection of the ascending and descending cumulative frequency curves determines ..... on the set-axis.

4 If three times of a number is 60 , then $\frac{1}{5}$ of this number equals .....

5 If the mode of the values 5 , 9 , 5 , $x+3$, 9 is 9 , then $x =$ .....

3 **[a]** If $x = \sqrt{5} + \sqrt{2}$, $y = \frac{3}{x}$, **then find the value of :** $\frac{x+y}{xy}$ in its simplest form.

[b] Find in $\mathbb{R}$ the solution set of the inequality : $-3 \leq 4x - 7 \leq 5$

[c] A right circular cylinder whose height is 8 cm. and its volume is 72π cm^3. Find the length of the radius of its base.

4 **[a] Find in its simplest form :** $\sqrt{50} + \sqrt[3]{54} - 10\sqrt{\frac{1}{2}} - \sqrt[3]{16}$

[b] If $X = [-1 , 5[$ and $Y = [2 , \infty[$, **find using the number line :**

1 $X \cup Y$ 2 $X \cap Y$ 3 $X - Y$

5 **[a]** Find three ordered pairs satisfying the relation $2x + y = 7$, then represent it graphically.

[b] Find the arithmetic mean of the following frequency distribution :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	4	5	6	3	2	20

13 Kafr El-Sheikh Governorate

Directorate of Education
Math's Supervision

Answer the following questions :

1 **Choose the correct answer :**

1 $(\sqrt{5}+\sqrt{3})^2 (\sqrt{5}-\sqrt{3})^2 =$ .....

(a) 2 (b) 3 (c) 4 (d) 8

2 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is .....

(a) 8 (b) 6 (c) 4 (d) 2

3 $2 \in$ .....

(a) $]-1 , \infty[$ (b) $]2 , 5[$ (c) $]-\infty , 1[$ (d) $\{22\}$

4 If $(-1 , 5)$ satisfies the relation $3x + ky = 7$, then $k =$ .....

(a) 7 (b) 4 (c) 3 (d) 2

5 If the slope of the straight line $ax + by + 1 =$ zero is undefined , then = ...

(a) $a = b$ (b) $a =$ zero (c) $b =$ zero (d) $a = -b$

6 The intersection point of the ascending and descending cumulative frequency curves determines the ..... on the sets axis.

(a) mode (b) median (c) mean (d) centre

2 Complete :

1 The slope of the straight line passing through the two points (2 , 6) and (– 1 , 3) equals .....

2 If the mode of the values 4 , 11 , 8 , 2 x is 4 , then x = ...

3 If the mean of the values 9 , 6 , 5 , 14 is k , then k = ...

4 If the volume of a sphere = 36 π cm^3. , then its diameter length = ... cm.

5 The degree of the algebraic term $3x^2y^2$ is .....

3 **[a]** Find the volume of the right circular cylinder whose diameter length of its base is 10 cm. and its height is 7 cm. $\left(\pi = \frac{22}{7}\right)$

[b] If X = $]-\infty , 5]$, Y = $]1 , 7]$

, find by using the number line : 1 $X \cap Y$ 2 $X \cup Y$ 3 $Y - X$

[c] Find the S.S. of the equation : $8x^3 + 7 = 8$ in $\mathbb{R}$

4 **[a]** Represent graphically the relation $y = x + 2$ and if (– 4 , a) satisfies the relation , find the value of a

[b] Simplify : $\sqrt{18} + \sqrt{50} - 2\sqrt{8}$

[c] Find in $\mathbb{R}$ the S.S. of the inequality : $-8 < 3x + 1 \leq 4$

5 **[a]** If $x = \sqrt{3} + \sqrt{2}$, $y = \frac{1}{\sqrt{3} + \sqrt{2}}$ **, then find the value of :** $\frac{x + y}{xy}$

[b] From the following frequency table with equal sets :

The Set	10 –	20 –	30 –	40 –	50 –	60 – 70	Total
Frequency	12	15	25	27	k + 4	4	100

1 Find the value of k 2 Calculate the median.

14 Souhag Governorate

Maths Supervision

Answer the following questions :

1 Choose the correct answer from those given :

1 If the mode of the values 5 , 8 , 6 + x , 9 is 9 , then x = ...

(a) 5 (b) 6 (c) 3 (d) 8

2 The volume of a cube is 27 cm^3. , then the area of one of its faces is .....

(a) 3 cm^2. (b) 9 cm^2. (c) 36 cm^2. (d) 54 cm^2.

Algebra and Statistics

3 The slope of any line parallel to x-axis equals .....

(a) 1 (b) undefined (c) -1 (d) zero

4 The multiplicative inverse of $\frac{2\sqrt{3}}{6}$ is .....

(a) $\sqrt{2}$ (b) 6 (c) $\sqrt{3}$ (d) zero

5 $\mathbb{Q} \cup \mathbb{Q}' =$ .....

(a) $\varnothing$ (b) 0 (c) $\mathbb{R}$ (d) $\mathbb{Z}$

6 If $(-1, 5)$ satisfies the relation $3x + ky = 7$, then $k =$ .....

(a) 5 (b) 6 (c) 2 (d) 7

2 Complete the following :

1 $[1, 5] - \{1, 5\} =$ .....

2 The S.S. of the equation : $x(x^2 - 1) = 0$ in $\mathbb{R}$ is .....

3 $(2x^2 y) \times (.....) = 12x^3 y$

4 The arithmetic mean of the values 8 , 6 , 3 , 7 , 1 is .....

5 $\sqrt[3]{64} + \sqrt{16} =$ .....

3 [a] Use the following table to find the relation between x , y :

x	-1	0	1	2
y	-1	1	3	5

[b] Find the S.S. of the inequality : $-2 < 3x + 7 \leq 10$ in $\mathbb{R}$, then represent the interval of the S.S. on the number line.

4 [a] If $x = \sqrt{3} + \sqrt{2}$, $y = \frac{1}{\sqrt{3} + \sqrt{2}}$, then find the value of : $\frac{x + y}{xy}$

[b] If $X =]-2, 1]$, $Y = [0, 3[$, use the number line to find :

1 $X \cap Y$ 2 $X \cup Y$ 3 $X - Y$

5 [a] Simplify : 1 $\sqrt{50} + \sqrt{18} - \sqrt{32}$ 2 $\sqrt[3]{54} + 8\sqrt[3]{\frac{1}{4}} + 5\sqrt[3]{16}$

[b] Find the arithmetic mean of the following frequency distribution :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	4	5	6	3	2	20

15 Luxor Governorate

Luxor Directorate
El-Salem Private Language School

Answer the following questions :

1 Choose the correct answer :

1 The smallest prime number is .....

(a) 0 (b) 1 (c) 2 (d) 3

2 If the mode of the set of values 4 , 11 , 8 , 2 x is 4 , then x = ...

(a) 2 (b) 4 (c) 6 (d) 8

3 If (2 , 5) satisfies the relation $3x + y = c$, then c = ...

(a) 1 (b) -1 (c) 11 (d) -11

4 The solution set of the equation $x^2 + 9 = 0$ in $\mathbb{R}$ is .....

(a) $\varnothing$ (b) $\{-3\}$ (c) $\{3\}$ (d) $\{3 , -3\}$

5 The lower limit of a set is 4 and the upper limit is 8 , then its centre is .....

(a) 2 (b) 4 (c) 6 (d) 8

6 4.274 $\simeq$ ..... $\left(\text{to the nearest } \frac{1}{10}\right)$

(a) 4 (b) 4.2 (c) 4.3 (d) 4.27

2 Complete :

1 $[2 , 7] - \{2 , 7\}$ = ...

2 The coefficient of the algebraic term $5 a^3 b^2$ is .....

3 The mean of 3 , 5 , 7 , 4 , 1 is .....

4 The slope of any line parallel to y-axis is .....

5 The median of the values 3 , 7 , 6 , 9 , 2 is .....

3 [a] Simplify to the simplest form : $\sqrt{27} - \sqrt{12} + \sqrt{300}$

[b] If $a = \sqrt{5} + \sqrt{3}$, $b = \sqrt{5} - \sqrt{3}$, **find :** $a^2 + 2ab + b^2$

4 [a] Find the S.S. in $\mathbb{R}$ of the inequality : $2x + 1 \leq 7$, then represent it on the number line.

[b] Find the volume of the sphere whose diameter length is 4.2 cm. $\left(\pi = \frac{22}{7}\right)$

5 [a] Let A (2 , -1) , B (10 , 3) and C (2 , 3). Find the slope of each of $\overleftrightarrow{AB}$ and $\overleftrightarrow{BC}$

[b] Find the arithmetic mean of the following distribution :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	4	5	6	3	2	20

Final Examinations of

Algebra and Statistics

2019

Some Schools Examinations on Algebra and Statistics

1 Cairo Governorate

Al-Nozha Administration
Al Farouk Islamic Language School

Answer the following questions :

1 Choose the correct answer from the given ones :

(1) The irrational number lies between 3 and 4 is .....

(a) 3.5 (b) $3\frac{1}{8}$ (c) $\sqrt{13}$ (d) $\sqrt{20}$

(2) $]-2,1]\cap\{-2,0,1\}=$ .....

(a) $\{-2,0,1\}$ (b) $\{1\}$ (c) $\{0,1\}$ (d) $[-2,1]$

(3) If $x=\sqrt{3}+2$ and $y=\sqrt{3}-2$, then $(xy, x+y)=$ .....

(a) $(5, 2\sqrt{3})$ (b) $(5, 9)$ (c) $(1, 2\sqrt{3})$ (d) $(-1, 2\sqrt{3})$

(4) The line represented the relation : $3x+8y=24$ intersects the y-axis at the point .....

(a) $(0, 8)$ (b) $(8, 0)$ (c) $(0, 3)$ (d) $(3, 0)$

(5) If the arithmetic mean of the set of the values $m, m+5, m+4, m+3$ is 9, then $m=$ .....

(a) 2 (b) 6 (c) 9 (d) 10

---

2 Complete each of the following :

(1) The slope of a straight line which passes through $(-3, 1)$ and $(-2, 5)$ is .....

(2) If the mode of the set of the values $17, 8, k+5, 8, 17$ is 8, then $k=$ .....

(3) The multiplicative inverse of $\frac{\sqrt{13}-\sqrt{10}}{3}$ is ..... (In the simplest form)

(4) The radius length of a sphere whose volume is $\frac{9}{2}\pi$ cm^3 is ..... cm.

(5) If the order of the median of the set of values is fifth, then the number of these values equals .....

---

3 [a] If $A=]-1, 3]$ and $B=[0, 5[$, **then find :**

(1) $A\cap B$ (2) $B-A$ (3) $\mathbb{R}_+\cap B$

[b] **Simplify :** $2\sqrt{27}+\frac{1}{3}\sqrt[3]{54}-\sqrt{75}+\sqrt[3]{16}$

---

4 [a] **Find in $\mathbb{R}$ the S.S. of each of the following :**

(1) $\frac{(2x-1)^3}{3}=9$ (2) $-1<3-2x\leq 5$

[b] If $x=2\sqrt{3}-\sqrt{2}$ and $y=\sqrt{12}+\sqrt{2}$ **Find the value of :** $\frac{x+y}{xy+2}$

Final Examinations

5 [a] If (a , 3) and (3 , b) satisfies the relation $2x - y = 1$

(1) Find the value of a and b

(2) Find the slope of the straight line which represented the relation : $2x - y = 1$

[b] From the following frequency table :

Sets	10 –	20 –	30 –	40 –	50 –	60 –	Total
Frequency	10	17	20	32	k + 2	4	100

(1) Find the value of k

(2) Graph the frequency histogram , then find the mode.

2 Cairo Governorate

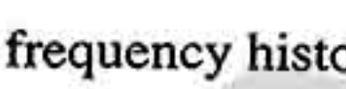
Western Cairo Educational Zone
Mathematics Inspection

Answer the following questions :

1 Choose the correct answer :

(1) If the volume of a cube is 64 cm^3 , then its edge length is .....

(a) 32 cm. (b) 16 cm. (c) 8 cm. (d) 4 cm.

(2) The figure  represents the solution of the inequality ..... in $\mathbb{R}$

(a) $x > -3$ (b) $x \geq -3$ (c) $x < -3$ (d) $x \leq -3$

(3) $\sqrt{3}(\sqrt{11}+\sqrt{3}) =$ .....

(a) $3\sqrt{11}+2$ (b) $\sqrt{33}+3$ (c) $11\sqrt{3}+2$ (d) $2\sqrt{11}+3$

(4) (3 , 2) does not satisfy the relation .....

(a) $y + x = 5$ (b) $3y - x = 3$ (c) $y + x = 7$ (d) $x - y = 1$

(5) The arithmetic mean of the values : 5 , 12 , 17 , 6 is .....

(a) 10 (b) 12 (c) 4 (d) 17

2 Complete each of the following :

(1) $\sqrt[3]{-64}+\sqrt{16} =$ .....

(2) If the mode of the set of the values : 15 , 9 , $x + 1$, 9 and 15 is 9 , then $x =$ .....

(3) The multiplicative inverse of the number $\frac{3}{\sqrt{3}}$ is $\frac{.....}{\sqrt{3}}$

(4) If the volume of a sphere = $\frac{9}{16}\pi$ cm^3 , then its radius length = ... cm.

(5) If the order of the median of the set of values is fourth , then the number of these values is .....

Algebra and Statistics

3 **[a]** If $x = \sqrt{3} - 2$ and $y = \sqrt{3} + 2$, **find the value of :** $\left(\frac{x-y}{x+y}\right)^2$

[b] Simplify the following to the simplest form : $\sqrt{98} - \sqrt{128} - \sqrt{18} + 4\sqrt{2}$

---

4 **[a]** If $X =]-\infty , 2[$ and $Y = [-1 , 5]$, **find using the number line :**

(1) $X \cap Y$ (2) $X - Y$

[b] Find the slope of the straight line passing through the two points : A (1 , 3) and B (2 , 3)

---

5 **[a] Find the solution set for the following equation in $\mathbb{R}$, then represent the solution on the number line :** $-8 \leq 3x + 1 \leq 4$

[b] Find the mean of the following frequency distribution :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	3	10	12	10	5	40

Answer the following questions :

1 **Complete the following :**

(1) The S.S. of the equation : $x^3 - 27 = 0$ in $\mathbb{R}$ is .....

(2) $[1 , 5] - \{1 , 5\}$ = ...

(3) The slope of the straight line which passes through the two points (2 , – 2) and (4 , 2) is .....

(4) A cube whose volume is 8 cm^3 , the length of its edge = ... cm.

(5) The arithmetic mean of 10 , 6 , 5 , 14 , 15 is .....

---

2 **Choose the correct answer :**

(1) If $x = \sqrt{3} + 2$ and $y = \sqrt{3} - 2$, then xy = ...

(a) 1 (b) –1 (c) – 4 (d) 3

(2) $]-1 , 3[\cap [-3 , -1]$ = ...

(a) $\varnothing$ (b) $\{-3\}$ (c) $\{-1\}$ (d) $\{3\}$

(3) If the lower limit of a set is 6 and the upper limit is 10 , then its centre is .....

(a) 4 (b) 6 (c) 10 (d) 8

Final Examinations

(4) The multiplicative inverse of $\frac{\sqrt{5}}{10}$ is .....

(a) $\sqrt{10}$ (b) $\sqrt{5}$ (c) $2\sqrt{5}$ (d) $-2\sqrt{5}$

(5) The S.S. of $x + 2 \geq 1$ in $\mathbb{R}$ is .....

(a) $[-1 , \infty[$ (b) $]-1 , \infty[$ (c) $[1 , 2]$ (d) $[1 , 2[$

3 **[a] Simplify :** $\sqrt[3]{16} - \frac{1}{3}\sqrt[3]{54} + \sqrt[3]{-2}$

[b] Find the S.S. of : $-2 < 3x + 7 \leq 10$ in $\mathbb{R}$ **, then represent the interval of the solution set on the number line.**

4 **[a] If** $x = \sqrt{5} + \sqrt{2}$ and $y = \sqrt{5} - \sqrt{2}$ **, then find the value of :** $\frac{x + y}{x\,y - 1}$

[b] If $X = [-2 , 1]$ and $Y = [0 , \infty[$ **Find :**

(1) $X \cap Y$ (2) $X \cup Y$ (3) $Y - X$

5 **[a] Find the arithmetic mean of the following frequency distribution :**

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	4	5	6	3	2	20

[b] Represent graphically the relation : $2y - x = 2$

4 Giza Governorate

Al-Agoza Directorate
Supervision of math.

Answer the following questions :

1 **Complete :**

(1) The S.S. of the equation $x^2 + 9 = 0$ in $\mathbb{R}$ is .....

(2) $\sqrt{16} = \sqrt[3]{.....}$

(3) The multiplicative inverse of the number $2\sqrt{3}$ is .....

(4) $\{8 , 9 , 10\} \cap]8 , 10[=$ .....

(5) The length of the edge of a cube of volume $15\frac{5}{8}$ cm^3 is .....

2 **Choose the correct answer :**

(1) The mean of the set of numbers : 5 , 12 , 17 , 6 is .....

(a) 40 (b) 20 (c) 5 (d) 10

(2) The S.S. of the equation : $x^2 - 1 = 8$ in $\mathbb{R}$ is .....

(a) $\varnothing$ (b) $\{3\}$ (c) $\{-3\}$ (d) $\{-3 , 3\}$

Algebra and Statistics

(3) The conjugate of $\frac{1}{\sqrt{3}-\sqrt{2}}$ is .....

(a) $\sqrt{3}-\sqrt{2}$ (b) $3-\sqrt{2}$ (c) $3+\sqrt{2}$ (d) $\sqrt{3}+\sqrt{2}$

(4) The value of b that makes $(-2, 3)$ satisfies the relation : $3x + by = 3$ is .....

(a) 3 (b) 2 (c) 1 (d) –3

(5) If the mode of the values : $5, x+3, 9, 4$ is 9 , then $x =$ .....

(a) 5 (b) 4 (c) 6 (d) 3

---

3 **[a] Represent graphically the relation :** $y = 2x - 3$

[b] If $X =]-\infty, 2]$ and $Y = [-1, 8]$ **, using the number line , find :**

(1) $X \cup Y$ (2) $X - Y$ (3) $X \cap Y$

---

4 **[a] Simplify :**

(1) $\sqrt{50}+\sqrt{18}-\sqrt{32}$ (2) $\sqrt[3]{54}+8\sqrt[3]{\frac{1}{4}}+5\sqrt[3]{16}$

[b] Find the slope of the straight line passing through the two points : A (5 , –3) and B (6 , 2)

---

5 **[a] Write two ordered pairs satisfying the relation :** $y = x + 1$

[b] Find the arithmetic mean of the following frequency distributive :

Sets	10 –	20 –	30 –	40 –	50 –	Total
Frequency	10	20	25	30	15	100

5 Giza Governorate

El-Haram Educational Zone
Pyramids Language School

Answer the following questions :

1 **Complete the following :**

(1) $\sqrt[3]{64} = \sqrt{.....}$

(2) If $a = \sqrt{5}-2$, $b = \sqrt{5}+2$, then $a^2 b^2 =$ .....

(3) The S.S. of the equation $x^2 + 5 = 0$ in $\mathbb{R}$ is .....

(4) $[-1, 5] \cap [3, 7] =$ .....

(5) If $a^2 + b^2 = 25$ and $ab = 5$, then $\frac{a}{b}+\frac{b}{a} =$ .....

2 Choose the correct answer :

(1) $\left(\sqrt{2}+\sqrt{8}\right)^2$ = ...

(a) 18 (b) $\sqrt{10}$ (c) 4 (d) 10

(2) The sum of the real numbers of the interval $[-150, 150]$ is .....

(a) 300 (b) – 300 (c) zero (d) 150

(3) The volume of a cuboid whose dimensions $\sqrt{2}$ cm. , $\sqrt{3}$ cm. , $\sqrt{6}$ cm. is .....

(a) 6 cm^3 (b) 36 cm^3 (c) $6\sqrt{6}$ cm^3 (d) $18\sqrt{2}$ cm^3

(4) $\sqrt{(10)^2-(6)^2}$ = ...

(a) 4 (b) 8 (c) ± 4 (d) ± 8

(5) $\sqrt[3]{3\sqrt{3}}$ = ...

(a) 3 (b) $\frac{1}{2}$ (c) $\sqrt[3]{3}$ (d) $\sqrt{3}$

---

3 [a] Simplify the following :

(1) $6\sqrt{\frac{5}{2}}+20\sqrt{\frac{2}{5}}$ (2) $4\sqrt[3]{\frac{1}{2}}+3\sqrt[3]{32}-\sqrt[3]{4}$

[b] Find the S.S. in $\mathbb{R}$: $(x-1)^2=4$

---

4 [a] If (3 , 2) satisfies the relation $x+2y=m$, then find the value of m

[b] Find the slope of the straight line passes through the two points (3 , 5) and (4 , 7)

[c] Represent graphically : $y=x+2$

---

5 [a] Find the median of : 28 , 25 , 24 , 26 , 27

[b] Find the arithmetic mean of the following frequency distribution :

Sets	10 –	20 –	30 –	40 –	50 –	Sum
Frequency	4	6	8	7	5	30

6 Alexandria Governorate

Middle Educational Zone
Math's Supervision

Answer the following questions :

1 Complete each of the following :

(1) If $3^x=1$, then x = ...

(2) The S.S. of the equation : $x(x^3-1)=0$ in $\mathbb{R}$ is .....

Algebra and Statistics

(3) $]5 , 7[\cup \{5 , 7\}$ = ...

(4) If the arithmetic mean of the values : 9 , 6 , 5 , 14 , k is 7 , then k = ...

(5) If the slope of the straight line : $k x + 2 y = 5$ is zero , then k = ...

2 Choose the correct answer from the given ones :

(1) $\left(2\sqrt[3]{2}\right)^3$ = ...

(a) 4 (b) 8 (c) 16 (d) 40

(2) If the volume of a cube is 27 cm^3 , then the area of its face is ..... cm^2

(a) 3 (b) 9 (c) 36 (d) 54

(3) If the order of the median of a set of values is the fourth , then the number of values is .....

(a) 3 (b) 5 (c) 7 (d) 9

(4) If the mode of the set of values : 5 , 9 , 5 , $x - 2$, 9 is 9 , then x = ...

(a) 5 (b) 57 (c) 9 (d) 11

(5) If (– 1 , 5) satisfies the relation : $3x + k y = 7$, then k = ...

(a) 2 (b) – 2 (c) 1 (d) 10

3 [a] Find the value of : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$

[b] If $x = \sqrt{5} + \sqrt{2}$ and $y = \sqrt{5} - \sqrt{2}$ **, find the value of :** $\frac{x + y}{x\,y - 1}$

4 [a] Write in the form of an interval the S.S. of the inequality : $x + 4 \geq 2x - 3 > x + 1$

[b] Represent graphically the relation : $y = 2 - x$

5 [a] The volume of a sphere is $\frac{99000}{7}$ cm^3 Calculate its radius length. $\left(\pi = \frac{22}{7}\right)$

[b] Find the arithmetic mean of the following frequency distribution :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	7	10	12	13	8	50

7 Alexandria Governorate

El-Montazah Educational Zone
Math's Supervision

Answer the following questions :

1 Complete each of the following :

(1) The multiplicative inverse for $\frac{-\sqrt{2}}{6}$ is .....

(2) If $5x - 3 y = 0$, then $x : y$ = ... : .....

(3) The slope of any line parallel to $\mathcal{X}$-axis = ...

(4) $\sqrt{5}+\sqrt{2}$ its conjugate is ..... and their product is .....

(5) If $(-1\ ,5)$ satisfies the relation $3\mathcal{X}+k\,y=7$, then k = ...

2 Choose the correct answer :

(1) If $|a|=5$, then a = ...

(a) 5 (b) –5 (c) ± 5 (d) $\sqrt{5}$

(2) The order of the median of the set of values : 4 , 5 , 6 , 7 , 8 is .....

(a) third. (b) fourth. (c) fifth. (d) sixth.

(3) The S.S. of the inequality $-2\mathcal{X}\geq 6$ in $\mathbb{R}$ is .....

(a) $]-\infty\ ,-3[$ (b) $]-\infty\ ,-3]$ (c) $[-3\ ,\infty[$ (d) $]-3\ ,\infty[$

(4) $\{8\ ,9\ ,10\}-]8\ ,10[$ = ...

(a) $\varnothing$ (b) $\{9\}$ (c) $\mathbb{N}$ (d) $\{8\ ,10\}$

(5) The mode of the set of values : 5 , 9 , 5 , $\mathcal{X}-2$, 9 is 9 , then $\mathcal{X}$ = ...

(a) 5 (b) 57 (c) 9 (d) 11

3 [a] Find in the simplest form : $2\sqrt{18}+\sqrt{50}+\frac{1}{3}\sqrt{162}$

[b] If $a-b=2\sqrt{7}$ **, then find the value of :** $a(a-b)^2-b(a-b)^2$

[c] Find the slope of line $\overleftrightarrow{AB}$, where A $(-1\ ,3)$ and B $(2\ ,5)$ Is the point C $(8\ ,1)\in\overleftrightarrow{AB}$?

4 [a] Find the S.S. of the inequality : $-1<2\mathcal{X}-3\leq 5$ in $\mathbb{R}$ and represent the interval of solution on the number line.

[b] Find the lateral area for right circular cylinder of volume 924 cm^3 , and its height 6 cm. $\left(\pi=\frac{22}{7}\right)$

5 [a] If $\left(\sqrt{3}\right)^{\mathcal{X}}=\left(2\sqrt{2}-\sqrt{5}\right)\left(2\sqrt{2}+\sqrt{5}\right)$ **, then what is the value of** $\mathcal{X}$?

[b] By using the following distribution :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	3	10	k – 2	10	5	40

(1) Find the value of k

(2) Find the arithmetic mean.

Algebra and Statistics

8 El-Kalyoubia Governorate

Mathematics Inspection

Answer the following questions :

1 Choose the correct answer :

(1) $\mathbb{Q} \cap \mathbb{Q}' =$ .....

(a) $\mathbb{R}$ (b) $\mathbb{R}_+$ (c) $\mathbb{R}_-$ (d) $\varnothing$

(2) The S.S. of the equation : $x^3 + 27 = 0$ in $\mathbb{R}$ is .....

(a) $\{3\}$ (b) $\{-3\}$ (c) $\varnothing$ (d) $\{3\sqrt{3}, -3\sqrt{3}\}$

(3) $\{x : x \in \mathbb{R}, x < 1\} =$ .....

(a) $\{0, -1, -2\}$ (b) $]-\infty, 1]$ (c) $]-\infty, 1[$ (d) $]1, \infty[$

(4) The mode of values : 3 , 5 , 3 , 6 , 5 , 3 , 7 is .....

(a) 3 (b) 5 (c) 7 (d) 6

(5) The arithmetic mean of the values : 6 , 19 , 32 , 25 , 8 is .....

(a) 90 (b) 32 (c) 18 (d) 6

---

2 Complete the following :

(1) If $3^x = 1$, then $x =$ .....

(2) The conjugate of the number $\frac{4}{\sqrt{7}-\sqrt{3}}$ is .....

(3) The total area of a cube of edge length 4 cm. is ..... cm^2

(4) If the point (6 , a) lies on the straight line whose equation is $x + y = 3$, then a = ...

(5) The median of the set of the values : 2 , 9 , 3 , 7 , 5 is .....

---

3 [a] If $x = \sqrt{5} + \sqrt{2}$ and $y = \sqrt{5} - \sqrt{2}$ Find the value of : $\frac{x + y}{x\,y + 1}$

[b] If X = [– 1 , 2] and Y = [1 , ∞[Find :

(1) $X \cap Y$ (2) $X \cup Y$

---

4 [a] Find the S.S. of the inequality : $7 \geq 2x + 1 > 3$

[b] The radius length of the base of a right cylinder is $4\sqrt{2}$ cm. and its height is 9 cm. Find its volume in terms of π

Final Examinations

5 [a] Find the slope of $\overleftrightarrow{AB}$ where A (2 , – 1) and B (– 1 , 3) , then draw $\overleftrightarrow{AB}$ on 2-dimensions coordinate.

[b] Find the arithmetic mean of the following frequency distribution :

The sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	3	4	7	4	2	20

9 El-Sharkia Governorate

Directorate of Education
Dept. of Governmental L. Schools

Answer the following questions :

1 Complete each of the following :

(1) $[2 , 7[\cup \{2 , 7\}$ = ...

(2) If the volume of a cube is 64 cm^3 , then its lateral area = ... cm^2

(3) If (k , 4) satisfies the relation $x + 2y = 15$, then k = ...

(4) If $a = \sqrt{5} + 1$ and $b = \sqrt{5} - 1$, then a – b = ...

(5) The mean of the numbers 3 , 4 , 6 , 7 is .....

2 Choose the correct answer :

(1) The additive inverse of $\sqrt{5} - \sqrt{3}$ is .....

(a) $\sqrt{5} - \sqrt{3}$ (b) $\sqrt{3} + \sqrt{5}$ (c) $-\sqrt{5} - \sqrt{3}$ (d) $\sqrt{3} - \sqrt{5}$

(2) The S.S. of the equation $x^2 + 16 = 0$ in $\mathbb{R}$ is .....

(a) $\{4\}$ (b) $\varnothing$ (c) $\{4 , -4\}$ (d) $\{-4\}$

(3) $\left(\sqrt{5}+\sqrt{3}\right)^2 \left(\sqrt{5}-\sqrt{3}\right)^2$ = ...

(a) 4 (b) 2 (c) 8 (d) 3

(4) The slope of any line parallel to x-axis equals .....

(a) 1 (b) undefined (c) – 1 (d) zero

(5) If $5x = 35$, then $2x + 1$ = ...

(a) 7 (b) 15 (c) 8 (d) 71

3 [a] Find the value of : $\sqrt{50} - \sqrt{8} + 2\sqrt{\frac{1}{2}} - \sqrt{18}$

[b] If $x = \frac{4}{3+\sqrt{5}}$ and $y = 3 + \sqrt{5}$ **Prove that :** x and y are conjugate numbers

, then find the value of : $(x + y)^2$

Algebra and Statistics

4 **[a]** If $A =]-2 , 6]$ and $B = [4 , \infty[$, **use the number line to find :**

(1) $A \cup B$ (2) $A \cap B$

[b] If the volume of a sphere is $36\ \pi$ cm^3. Find the length of its radius , then calculate its total area ($\pi = 3.14$)

---

5 **[a] Graph the linear relation :** $y = 2x - 1$

[b] Solve in $\mathbb{R}$ the inequality : $x + 2 \leq 3x + 2 < x + 16$

[c] Find the mean of the following data :

Sets	20 –	30 –	40 –	50 –	60 –	70 –	Total
Frequency	10	15	22	25	20	8	100

10 El-Dakahlia Governorate

Math's Supervision (E.L.S)

Answer the following questions :

1 **Complete the following :**

(1) $[-5 , 9] - \{-5 , 9\} =$ .....

(2) The S.S. of the equation : $x^3 + 8 = 0$ in $\mathbb{R}$ is .....

(3) If the mode of $14 , 9 , x + 5 , 9$ and 14 is 9 , then $x =$ .....

(4) The slope of the straight line parallel to x-axis is .....

(5) If the volume of the sphere is $\frac{1}{6}\ \pi$ cm^3 , then its radius length = ...

---

2 **Choose the correct answer :**

(1) If $x = 5 + \sqrt{3}$ and $y = 5 - \sqrt{3}$, then $x - y =$ .....

(a) 10 (b) -10 (c) $\sqrt{6}$ (d) $2\sqrt{3}$

(2) If the order of the median of the set of values is the fourth , then the number of values is .....

(a) 8 (b) 10 (c) 7 (d) 9

(3) $\left(1 + \sqrt{7}\right)\left(1 - \sqrt{7}\right) =$ .....

(a) 2 (b) -4 (c) $-2\sqrt{7}$ (d) -6

(4) If A $(2 , -2)$ and B $(1 , 4)$, then the slope of $\overleftrightarrow{AB}$ = ...

(a) -2 (b) 2 (c) -6 (d) $-\frac{1}{2}$

(5) The mean of the values $3 , 7 , 8 , 2$ is .....

(a) 2 (b) 4 (c) 5 (d) 6

Final Examinations

3 **[a] Simplify to the simplest form :** $2\sqrt{18}+\sqrt[3]{54}-12\sqrt{\frac{1}{2}}-5\sqrt[3]{16}$

[b] If $X=[-2\ ,5]$ and $Y=]2\ ,\infty[$

Find : (1) $X\cap Y$ (2) $Y-X$

---

4 **[a] Find in $\mathbb{R}$ the S.S. of the inequality :** $-9\leq -3x+2<17$

[b] If $x=\sqrt{7}+\sqrt{6}$ and $y=\frac{1}{\sqrt{7}+\sqrt{6}}$

(1) **Prove that :** x and y are conjugate. (2) **Find :** the numerical value of x^2-y^2

---

5 **[a] Graph :** $y+2x=4$ Does the point $(-1\ ,6)$ belong to the straight line ?

[b] Using the following distribution , find the arithmetic mean :

Sets	10 –	20 –	30 –	40 –	50 –
Frequency	6	14	21	24	10

11 **Ismailia Governorate**

Directorate of Education
El-Manar Language School

Answer the following questions :

1 **Complete the following :**

(1) $[-1\ ,5]-]-1\ ,5[=$ .....

(2) If $(k\ ,5)$ satisfies the relation : $2y+2x=8$, then $k=$ .....

(3) The S.S. of the equation $x^3+125=0$ in $\mathbb{R}$ is .....

(4) The additive inverse of $\sqrt{7}+\sqrt{3}$ is .....

(5) If the dimensions of a rectangle is $\left(\sqrt{11}+2\right)$ cm. and $\left(\sqrt{11}-2\right)$ cm. , then its area = ... cm^2

---

2 **Choose the correct answer :**

(1) If the mode of the values $8\ ,7\ ,8\ ,5\ ,x-5\ ,5$ is 8 , then $x=$ .....

(a) 8 (b) 10 (c) 5 (d) 13

(2) The slope of the straight line passing through the two points $(-2\ ,2)$ and $(-8\ ,5)$ is .....

(a) $\frac{-7}{10}$ (b) $\frac{10}{7}$ (c) $\frac{-6}{12}$ (d) -2

Algebra and Statistics

(3) If the volume of a cube is 27 cm^3 , then the sum of edges of this cube is ..... cm.

(a) 36 (b) 3 (c) 12 (d) 27

(4) The median of the values 31 , 13 , 9 , 60 , 1 , 45 , 4 is .....

(a) 60 (b) 13 (c) 31 (d) 163

(5) $]-\infty , 0] =$ .....

(a) $\mathbb{R}_+$ (b) $\mathbb{R}_-$

(c) set of non positive real numbers. (d) set of non negative real numbers.

---

3 **[a] Find the simplest form of :** $\sqrt[3]{54} - \frac{1}{2}\sqrt[3]{16} + \sqrt[3]{-2}$

[b] If $x = \sqrt{5} + \sqrt{3}$ and $y = \frac{2}{\sqrt{5}+\sqrt{3}}$ **, find the value of :** $\frac{x+y}{xy}$

---

4 **[a] Find the S.S. in $\mathbb{R}$ of the inequality :**

$-2 < 3x + 7 \leq 10$ and represent it on the number line.

[b] If $X =]-\infty , 5]$ and $Y =]1 , 9[$ **Find using the number line :**

(1) $X \cap Y$ (2) $X \cup Y$ (3) $X - Y$ (4) $\grave{X}$

---

5 **[a]** If the volume of a sphere is 288 π cm^3 find its area.

[b] The following table shows the frequency distribution of marks of 40 students in an algebra exam :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	7	9	12	x	4	40

(1) Find the value of x (2) Find the arithmetic mean.

12 Port Said Governorate

Educational Directorate
Math inspection

Answer the following questions :

1 **Choose the correct answer :**

(1) The multiplicative inverse to the number $\frac{3}{\sqrt{2}}$ is .....

(a) $\frac{\sqrt{2}}{3}$ (b) $\frac{\sqrt{3}}{2}$ (c) $\frac{\sqrt{2}}{2}$ (d) $2\sqrt{3}$

(2) The solution set of the equation : $x^3 = 8$ in $\mathbb{R}$ is .....

(a) $\varnothing$ (b) $\{2\}$ (c) $\{-2\}$ (d) $\{0\}$

(3) $\mathbb{Q} \cup \grave{\mathbb{Q}}$ = ...

(a) $\varnothing$ (b) 0 (c) $\mathbb{R}$ (d) $\mathbb{Z}$

(4) The conjugate of the number $\sqrt{2}-\sqrt{3}$ is .....

(a) $\sqrt{2}+\sqrt{3}$ (b) $\sqrt{3}-2$ (c) $2-\sqrt{3}$ (d) $-\sqrt{2}+\sqrt{3}$

(5) The arithmetic mean of the values 2 , 5 , 8 is .....

(a) 5 (b) 4 (c) 3 (d) 2

2 Complete each of the following :

(1) The mode of the values 5 , 5 , 6 , 4 , 5 is .....

(2) The slope of the straight line which parallel to the x-axis = ...

(3) $[2 , 8[\cup \{8\}$ = ...

(4) $\sqrt[3]{\text{.....}} = \sqrt{4}$

(5) A cube of side length 3 cm. , then its volume = ... cm^3.

3 [a] Find the solution set in $\mathbb{R}$ to the following inequality in the form of an interval :

$x - 2 > 3$

[b] If $x = \sqrt{3}+\sqrt{2}$ and $y = \sqrt{3}-\sqrt{2}$ Find the value of : $x \times y$

4 [a] Without using calculator , simplify : $\sqrt{2}+\sqrt{8}-\sqrt{18}$

[b] Find the slope of the straight line which passes through the two points (2 , 3) and (1 , 2)

5 [a] Write three ordered pairs satisfy the relation : $x + y = 5$

[b] Find the arithmetic mean for the following frequency distribution :

Sets	2 –	4 –	6 –	Total
Frequency	2	4	2	8

13 Kafr El-Sheikh Governorate

General Maths Supervision

Answer the following questions :

1 Choose the correct answer :

(1) The mean of the values : 21 , 19 , 27 , 3 , 5 is .....

(a) 90 (b) 32 (c) 18 (d) 15

Algebra and Statistics

(2) If $x = \sqrt{7} - \sqrt{5}$ and $y = \sqrt{7} + \sqrt{5}$, then $(xy)^3 =$ .....

(a) 4 (b) 6 (c) 8 (d) 9

(3) $[1, 3] - \{1, 3\} =$ .....

(a) $]1, 3[$ (b) $]-1, -3[$ (c) $[1, 3[$ (d) $]-1, 3[$

(4) $\mathbb{R} =$ .....

(a) $[0, \infty]$ (b) $]-\infty, \infty[$ (c) $[0, \infty[$ (d) $]-\infty, 0]$

(5) If A (2 , 7) and B (5 , – 2) , then the slope of $\overleftrightarrow{AB}$ = ...

(a) – 2 (b) 2 (c) – 3 (d) 3

---

2 Complete :

(1) The volume of a sphere whose diameter length is 6 cm. = ... π cm^3.

(2) The S.S. for the equation $x^3 + 8 = 0$ in $\mathbb{R}$ is .....

(3) If (k , 2 k) satisfies $x + y = 15$, then k = ...

(4) The slope of any line parallel to the x-axis = ...

(5) If the area of one face of a cube = 9 cm^2 , then its volume = ... cm^3.

---

3 [a] Simplify : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \sqrt[3]{16}$

[b] Find in $\mathbb{R}$ the S.S. of the following inequality : $-1 \leq 5x + 4 \leq 14$ **, then represent the S.S. on the number line.**

---

4 [a] If $x = \sqrt{6} + \sqrt{5}$ and $y = \sqrt{6} - \sqrt{5}$ **Find :** $(x + y)^2$

[b] If $X =]-3, 2]$ and $Y =]-1, 5]$ **, then find :**

(1) $X \cap Y$ (2) $X \cup Y$

---

5 [a] Represent the relation $x + y = 3$ on the coordinate plane.

[b] Find the mean for the following frequency distribution :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	4	5	6	3	2	20

Final Examinations

14 Beni Suef Governorate

Directorate Of Official Language School
Education administration

Answer the following questions :

1 Choose the correct answer :

① The irrational number lies between – 2 and – 1 is .....

(a) – 3 (b) $-1\frac{1}{2}$ (c) $-\sqrt{3}$ (d) $\sqrt{2}$

② $\sqrt[3]{x^6} = \sqrt{\text{.....}}$

(a) x^3 (b) x^2 (c) x (d) x^4

③ $|-5|-|5| =$ .....

(a) – 10 (b) – 5 (c) 0 (d) 10

④ (3 , 2) does not satisfy the relation .....

(a) $y + x = 5$ (b) $3y - x = 3$ (c) $y + x = 7$ (d) $x - y = 1$

⑤ If the volume of a right circular cylinder is 90π cm^3 and its height is 10 cm. , then the radius length of its base equals ..... cm.

(a) 3 (b) 4.5 (c) 5 (d) 9

---

2 Complete :

① If (a , 3) satisfies the relation $2x - y = 7$, then a = ...

② $\left(\frac{-5}{7}\right) \times \left(\frac{-7}{5}\right) =$ .....

③ If the arithmetic mean of the values 9 , 6 , 5 , 14 , x is 7 , then $x =$ .....

④ The point of intersection of the ascending and descending cumulative frequency curves determines ..... on the set-axis.

⑤ If the sum of five numbers equals 30 , then the arithmetic mean of these numbers is .....

---

3 [a] Simplify to the simplest form : $\sqrt[3]{-16} + \frac{14}{\sqrt{7}} - \sqrt{28} + \sqrt[3]{54}$

[b] If $x = \frac{4}{3+\sqrt{5}}$ and $y = 3 + \sqrt{5}$, **Find the value of :** $x^2 + y^2$

---

4 [a] If $X = [-1 , 4]$, $Y = [3 , \infty[$ and $Z = \{3 , 4\}$ **, find each of the following using the number line :**

① $X - Y$ ② $Y \cap Z$

[b] Find the solution set ot the inequality $3 - 2x \leq 7$ in $\mathbb{R}$ in the form of an interval , then represent the solution on the number line.

5 **[a]** Let A (2 , – 1) , B (10 , 3) and C (2 , 3) , **find the slope of each of :** $\overleftrightarrow{AB}$ and $\overleftrightarrow{AC}$

[b] The following table shows the frequency distribution of the weekly bonus of 100 workers in a factory :

Bonus in L.E.	20 –	30 –	40 –	50 –	m –	70 –
Number of workers	10	k	22	26	20	8

① Find the value of each of k and m

② Graph the frequency histogram , then find the mode value of the weekly bonus.

15 Assiut Governorate

Badr Language School

Answer the following questions :

1 **Choose the correct answer from those given :**

① If the volume of a cube is 27 cm^3 , then the area of one of its faces is .....

(a) 3 cm^2 (b) 9 cm^2 (c) 36 cm^2 (d) 54 cm^2

② The S.S. of the equation : $x^2 + 3 = 0$ in $\mathbb{R}$ is = ...

(a) $\varnothing$ (b) $\{-\sqrt{3}\}$ (c) $\{\sqrt{3}\}$ (d) $\{-\sqrt{3} , \sqrt{3}\}$

③ If $x = \sqrt{3} + 2$ and $y = \sqrt{3} - 2$, then $(xy , x + y)$ = ...

(a) $(1 , 2\sqrt{3})$ (b) $(-1 , 2\sqrt{3})$ (c) $(5 , 2\sqrt{3})$ (d) (5 , 9)

④ If the median of the set of the values : k + 1 , k + 2 , k + 5 , k + 4 , k + 3 where is k is a positive number is 13 , then k = ...

(a) 2 (b) 5 (c) 10 (d) 13

⑤ If the mode of the set of values : 4 , 11 , 8 , 2 x is 4 , then x = ...

(a) 2 (b) 4 (c) 6 (d) 8

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2 **Complete :**

① If (– 1 , 5) satisfies the relation 3 x + k y = 7 , then k = ...

② [2 , 6] – {2 , 6} = ...

③ If the arithmetic mean of the values 9 , 6 , 5 , 14 , k is 7 , then k = ...

④ The slope of the straight line passing through the two points (2 , 6) and (– 1 , 3) is .....

⑤ The multiplicative inverse of the number $\sqrt{3} - \sqrt{2}$ is ..... (in the simplest form)

Final Examinations

3 **[a]** If $x = \sqrt{5} + \sqrt{2}$ and $y = \sqrt{5} - \sqrt{2}$, **find the value of :** $\frac{x + y}{xy - 1}$

[b] Find the S.S. of the inequality : $-5 \leq 2x - 3 < 5$ in $\mathbb{R}$, then represent it on the number line.

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4 **[a] Prove that :** $\sqrt[3]{128} + \sqrt[3]{16} - 2\sqrt[3]{54} = 0$

[b] Represent graphically the relation : $y = 2 - x$

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5 **[a]** If $X =]-\infty , 2[$ and $Y = [-1 , 5]$ **find as an intervals using the number line :**

① $X \cup Y$ ② $X \cap Y$ ③ $X - Y$

[b] Find the arithmetic mean of the following frequency distribution :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	7	10	12	13	8	50